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A teacher education program has been designed to (1) illustrate a process for creating teacher education programs and (2) provide an example of one which is designed to prepare educators who will have the skill and commitment to help create and test new educational forms. The rationale is the idea that professional performance can be described in terms of control over certain areas of reality that are essential to developing creative roles, rather than the ability to fill already defined teacher roles. The program is operated as a democracy with small self-regulated units of students (inquiry groups) monitoring their own progress and administering the program to themselves with the assistance of faculty counselors whose role is based on a "differential training model" for individualizing instruction. A "contact" laboratory is organized to provide teacher-candidates with opportunities for study, microteaching, and experimentation rather than to socialize them to the school as it presently exists. Program components are based on four future-oriented roles, each involving constant experimentation: (1) institution builder (shaper of the school), (2) innovator (rather than bureaucratic functionary), (3) scholar (academic specialist also involved in the study of teaching and of children), (4) interactive teacher (instructional decision-maker; master of teaching strategies; flexible, sensitive developer of classroom social systems). (The complete report is ED 027 284.) (JS)

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SUMMARY OF THE FINAL REPORT

Project No. 8-9019
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SUMMARY OF THE

TEACHER-INNOVATOR:

A PROGRAM TO PREPARE TEACHERS

TEACHERS COLLEGE
COLUMBIA UNIVERSITY

October 1968

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SUMMARY *

I. Introduction

> The only reason that a teacher should be a person, alive to the things that are, is that he must encourage speculation and lead it. To help a student learn about an unknown and vastly different country requires a medium, a metaphor in which the known and the unknown can meet, each taking meaning from the other, and such a medium is the essence of music, of poetry, of art. Students taught by a real humanist will become real humanists, readers, listeners, men of intellectual and emotional delight, ready for a kind of intimacy with the world which will breed not contempt, but freedom of mind, a way out of the slavery of mere conformism to society.
>
> Ole Sand, Director of the Center for the Study of Instruction, N.E.A. from an address before The Tanglewood Symposium, Music Educators National Conference, Lenox, Mass., 1967.

To prepare a teacher who will be an innovator requires a teacher education program that attends as carefully to his inner resources as it does to his technical competence. Flexibility, commitment, and a secure self-knowledge become as necessary as the possession of a range of powerful teaching strategies and interpersonal skills.

In this document we have described a teacher education program designed to prepare educators who will have the skill and commitment to help create and test out new educational forms. It gives as much attention to the teacher as an institution-builder, as a scholar, and as an innovator as it does to preparing him to work directly with children. Our purpose is to illustrate a process for creating teacher education programs and to provide an example of one which is designed to promote innovation and the scientific study of teaching. We do not expect that anyone will attempt to implement it in the form in which we have created it. We do hope that a few faculties and scholars in the field of teacher education will find our ideas stimulating and useful as they, too, attempt to make teacher education a more powerful force for change and scholarship in education.

At the most general level, the development of new patterns of teacher education is made complex by three factors. For one, it requires the definition of professional competence and the invention of methods for the creation of effective teachers. Second, teacher education is part of an exceedingly diffuse and changing education scene. It bears an

* Pages 7 thru 28 (Chapter 3) of final report.

uneasy relationship to the ongoing teaching profession because it stands for change, and therefore creates tension within the profession. Yet, its graduates must be able to perform within the existing institutions of the school and to help define current as well as new roles for teachers. Third, professional teacher education is wedded to and is part of the general university education of the student, and in the past it has not very often capitalized on or enhanced that general education. "General" and "professional" education have often, in fact, warred with one another.

II. Considerations for a Rationale

Change

The first consideration is that teacher education must be rooted in a commitment to educational change. The young teacher needs to be prepared--not by socializing him to the existing pattern of the school--but by preparing him to participate in the re-creation of educational forms and substance. Unquestionably, the young teacher needs the cooperation of the existing school if he is to try out new educational procedures. (He cannot have in a kit by his side the computer terminals that he might need to institute computerized instruction. Nor is he able to carry game-type simulations with him wherever he goes, or to become a new type of specialist in a school that does not recognize that specialty.) He needs to know, therefore, not only about the kinds of alternative educational forms that are developing, but what it takes to bring them into existence in the institution or the school.

To fulfill its commitment to change, a teacher education program has to be entwined with schools and clinics where educational experimentation is the norm. The new teacher needs to observe and work with faculties who study teaching and learning - who carry out their work in a spirit of inquiry. He also needs training and support services long after his preservice education has been completed. In fact, the world of education is changing so rapidly that the distinction between "preservice" preparation as a period of intensive training followed by an "inservice" period in which training is less intensive or even haphazard, is not valid. An increasingly high proportion of the "service" will be consumed by re-education and experimentation.

Uncertainty

Another consideration is that the new teacher enters a world in which we are very uncertain about the ends and means of education. Although it will no doubt make him uncomfortable to find this out, the only honest teacher education will be one which confesses to the young teacher from the beginning that he will need to be a participant in the study of education as well as in the process of teaching.

He is entering a world in which new alternative models for curriculum and instruction are being created and tested at a very rapid rate. The young teacher might wish that he could be taught the "right" methods or even the "best" methods for accomplishing any purpose, but such certainties are rare. New ways of doing things are being created at an accelerating rate. Also social forces are rendering obsolete many aspects of present-day education and are challenging teachers to create new types of education. The young teacher needs to know how to participate in the creation of new procedures and forms and their incorporation into school life. Consequently, to prepare him to work in a "self-contained" classroom or on a teaching "team" or in any other single model would be mistaken. He needs to be prepared at a more generic level to help create new goals and assemble the means for carrying them out. Perhaps most critical, he needs to know how to train himself for new educational roles.

These demands may seem obvious, but they are surprisingly difficult ones to act upon. Nearly all teacher education programs in the past have been centered around a powerful apprenticeship component whose purpose was to socialize the young teacher to one of several prevailing or new educational patterns. Nursery and kindergarten teachers, for example, have generally been trained to the "Montessori" system, or to the "play-school" theories, or to "academic" approaches. In both student teaching and internship programs the young teacher frequently has learned only to accommodate himself to the existing school, rather than to make independent curricular and instructional decisions that reflect an advanced knowledge of curriculum materials and learning. Hence, it is frequently found at the end of a conventional teacher education program that the young teacher has not been prepared to make decisions concerning objectives or appropriate learning activities. It is necessary therefore to build a program which takes advantage of the virtues of the existing school and which prepares its students to work in them, but which avoids the over-stabilizing effects of student teaching and internship which characterize most present practice.

Scholarship

The present state of knowledge about teaching and learning is such that the teacher who would live rationally must be a competent scholar of teaching and learning. He must be prepared to create and test out original solutions to educational problems. He must create, study, and test curriculum materials. Ideally, he needs to create with his colleagues what Robert Schaefer calls a school that is a center of inquiry.[1] This is the kind of goal that arises from the dilemma of the universities' commitment to the development of rational man. Although it will be extremely difficult to prepare large numbers of teachers who will have the capacity to inquire into teaching and learning, it is essential that the attempt be made. Otherwise, we

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[1]Robert J. Schaefer. The School as a Center of Inquiry (New York: Harper, 1967).

turn away from the possibility of a reasoned life and a reasoned approach to education. We simply cannot support the conception of a teacher as an applier of formulas.

As roles in education become more differentiated, it will become more possible to prepare teachers for a high level of scholarship. The specialist in computer simulation, for example, will be in a far more manageable role than is the multi-purpose nursery school teacher of today, whose role is too diffuse to permit mastery in performance, let alone scholarship. Teachers with specialities and support systems such as those defined recently by Joyce [2] will be in a position to create new procedures and new knowledge about their effectiveness.

Training Modes

The applications of the cybernetic stance to the problems of training are resulting in powerful new training methods for achieving performance objectives. [3] Within the field of teacher education alone, we have seen the development of "microteaching" [4], integrated feedback systems [5], the use of simulation techniques to provide decision-making training [6], the development of components to achieve greater

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[2] Bruce R. Joyce. Man, Media and Machines (Washington: National Education Association, 1967).

[3] Karl U. Smith and Margaret Foltz Smith. Cybernetics Principles of Learning and Educational Design (New York: Holt, Rinehart and Winston, 1966).

[4] Dwight Allen, Robert Bush and associates, working at Stanford University. See, for example: Dwight W. Allen. "Micro-Teaching: A New Framework for In-Service Education", High School Journal (May, 1966).

[5] Some, as those developed by Flanders, Amedon, and their associates, use category systems. (See: Edmund J. Amedon and Elizabeth Hunter. Improving Teaching (New York: Holt, Rinehart and Winston, 1967). Others use combinations of analytic systems, as: Bruce R. Joyce and Richard E. Hodges. "Instructional Flexibility Training", Journal of Teacher Education (Winter, 1966).

[6] As by Broadbent at Brockport; Cruikshank at Tennessee; Kersh at Oregon; Brown, Kinsey, O'Donnell, and Joyce at Teachers College.

interpersonal flexibility in teaching [7], and even the development of programs to increase what is called the "interpersonal strength" of the teacher, or his ability to develop structure in difficult interpersonal situations [8]. Plans such as Joyce's [9] for data banks where developmental profiles of the teaching styles of teacher education students are cumulated permit the student and the faculty responsible for his education to obtain a clear developmental picture and to modify the training on that basis. In a similar vein, the studies by Hunt [10] and his collaborators have resulted in the development of differential training models which postulate the types of training suitable for teachers who vary in style and personality. The result of all this work is a solid basis on which to begin to develop performance models for teacher education.

It is still difficult, however, to develop <u>fixed</u> performance models of teaching. Much too little is known about effective teacher behaviors. One cannot, with confidence, develop performance models for teacher education simply by analyzing the functions of present operatives in the classroom. Furthermore, educational technology is changing so rapidly that to build performance models for teacher education around studies of teaching might be akin to basing a driver education program on a study of the horse. Any adequate performance model will describe operatives who function in an emerging milieu which they help to shape rather than under fixed conditions in which their performance can be closely specified.

<u>Complexity</u>

Another consideration is the exceeding complexity of teaching. Teaching is not a single process. Some of the processes of teaching are scholarly in character. (For example, analyzing the modes of inquiry of scholarly disciplines.) Others require great interpersonal capacity. (As working with others to change the character of a school.) Yet others are primarily technical abilities. (For example,

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[7] As by Hunt, Dirr and Joyce at Manhattanville College.

[8] As Weinstein, Hunt and their associates at Syracuse University and Weinstein, O'Donnell and their associates at Teachers College.

[9] Bruce R. Joyce and Richard E. Hodges. "The Use of Developmental Studies of Teaching Styles for Research on Teacher Education" (paper delivered to the American Educational Research Association, Chicago, February, 1966).

[10] David E. Hunt. "A Model for Analyzing the Training of Training Agents", <u>Merrill Palmer Quarterly</u> (Winter, 1966).

diagnosing learning difficulties.) Consequently, the components of a teacher education program will not all look the same. Single methods in teacher education are very unlikely to produce the complexity of competencies that are necessary to the teacher. Some components need the kinds of methods that are characterized by training psychology. Other components require feedback techniques that enable the learner to monitor his own performance. Yet other components should be characterized by scholarly inquiry and still others may involve an almost therapy. The strategies of a sound program will be as multiple as are its components.

Authenticity

To prepare a teacher who studies teaching and learning, who creates and tests educational ideas and forms, we must ourselves create a school which can operate as a "center of inquiry." [11] This must be done to provide the teacher candidate with a model for institution-building -- to give him a concrete example of a community of teachers living as scholar-innovators.

The creation of the school must be done for a second and much more important reason, which is that the people who prepare teacher-innovators must demonstrate that such schools can be developed. If a faculty fails to prove to itself and its teacher candidates that a school as a center of inquiry can be built, then that faculty will lose credibility with its students, and perhaps even with itself.

How did we begin to develop a teacher education program to prepare teachers to shape the future - to create and fill educative roles which do not yet exist? We began by developing a set of hypotheses about the kinds of capacity this teacher would need.

III. A Rationale For Teacher Education

In a sense, our primary task was to develop a broad performance model of the professional educator, a structure of teaching [12] that would enable the creation of the ends and the means of the teacher education program. The basis of our rationale stems from the idea that professional performance can be described in terms of control over certain areas of reality that are essential to develop creative roles, rather than the ability to fill already-defined teaching roles. The selected areas of reality would enable the teacher to work as a creator. This conception avoids the problem of developing performance

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[11] Robert J. Schaefer. The School as a Center of Inquiry (New York: Harper, 1967).

[12] The term is taken from Bruce R. Joyce and Berj Harootunian. The Structure of Teaching (Chicago: Science Research Associates, 1967).

models based on studies of existing functionaries or our limited visions with respect to functionaries for today's schools. The rationale presented herewith represents a stage in the collegiate thinking of faculty members at Teachers College who have independently developed models of teacher education: Bruce Joyce, Arthur Foshay, Gerald Weinstein, Margaret Lindsey and Robert Schaefer. While Joyce's conceptions have structured the writing of this document, the other conceptions have influenced it heavily.

Creativity and Control over Reality

Professional performance in all walks requires control over certain areas of reality. Let us examine architecture for an example. The well-trained architect controls knowledge about engineering, of structural materials of various kinds, the processes of fabricating new materials, of drafting, of decorating, of selecting and designing furniture for various purposes. Equally essential, he controls strategies for analyzing problems of various kinds. He faces design problems, hearing problems, problems of function and space, problems relating to the creation of servo-mechanisms that can support the work of functionaries within an environment. The architect not only has strategies for analyzing problems but he is acquainted with a large repertory of other persons' solutions to those kinds of problems. He therefore controls design techniques. He knows how other people have approached problems of creating areas of quiet in busy places.

Most important, the good architect knows how to learn. In the course of a project, he can actually increase his capacity to perform his work. He learns to identify possibilities no one ever taught him and to solve problems that were not perceived when he was trained. In fact, the more creative he is the more he has to invent ways of learning, of monitoring and increasing his technical competence. Recently, for example, many architects have learned to create computer models of the buildings they design. As they alter their design, they can consult their model and see the implications of, for example, a change in one place, or the stress that is placed somewhere else. The computer model can actually recalculate the specifications for structural members for certain kinds of changes to be made. The men who have learned to do this sort of thing control many areas of reality in such a way that their control increases continually as they see new options within their environment.

Let us transfer this conception to the task of developing performance models for teacher education. To do so -- to create a model of a professional who will grow in capacity, create new options for children, and contribute to his profession -- is to identify the areas of reality that he needs to control in order to define and solve educational problems. This is a very different conception of professional control from one which is centered on the training of the present-day functionary. Conceiving professional functioning as the creative manipulation of reality puts future growth in a central position.

The first stage in the creation of a program of teacher education is the identification of the areas of reality which the teacher should control if he is to function effectively with children, create new educational forms and bring them into existence, and participate in the quest for knowledge about teaching. The second stage is the development of curricular systems which will enable teacher education students to achieve control of the essential areas of reality.

The Four Roles of the Teacher-Innovator

We identified four roles which seem essential for the teacher who is an innovator and a scholar. Within each role, certain kinds of control appear necessary.

1. The Institution-Builder. (Shaper of the School). In this role the teacher-innovator works with other faculty members, community representatives, students and administrators to design complete educational programs and organizational structures to bring them into existence. The shaper of the school controls strategies for studying and designing curricula systems; analyzing and creating effective social systems in the school; and assembling and employing technical support systems which facilitate education.

2. The Interactive Teacher. The most familiar teaching role occurs during contact with children. At that point the teacher needs strategies for making instructional decisions which are tailored to the characteristics and needs of the students. He can work with groups of children to build effective democratic structures through which they can conduct their education. He controls a wide variety of teaching strategies and wide range of technological assists to education. He is a student of individual differences and he has the interpersonal sensitivity to touch closely the minds and emotions of the students and to modify his own behavior as a teacher in response. He is able to bring structure to chaotic situations without being punitive. The teacher does this in company with his colleagues. He rarely works alone partly because he is more effective when teamed with others but also because he needs their colleagueship and the shared analysis of teaching and learning that is a continuous part of their professional life. With them he controls techniques for designing continual small experiments of teaching and learning.

3. The Innovator. To be an innovator rather than a bureaucratic functionary a teacher needs to combine personal creativity with ability to work with others to build educational settings in which innovation rather than imitation is the norm. He has techniques for analyzing

the social structure of the school, especially how it inhibits or facilitates creative behavior.

4. The Scholar. As Robert Schaefer puts it we cannot "wind the teacher up like an old victrola and hope that he will play sweet cerebral music forever." Continuous scholarship renews him and adds to knowledge about education. He controls techniques for studying the processes of interactive teaching and theories of learning. He specializes in one discipline until he knows the nature and the modes of inquiry of that discipline. Equally important, he knows how to engage in research that relates that discipline to the lives of young children. He controls structures for studying the school and for studying teaching and learning, so he can design and carry out educational experiments. He masters a range of teaching strategies derived from different views of learning, and more important than that controls techniques for developing and testing new ones.

The Structure of the Program

These four future-oriented roles (the Interactive Teacher, the Institution-Builder, the Innovator, and the Scholar) became the sources of the structure of the program. Two frameworks were then developed for the program. One consists of general procedures which unify the program and are shared by all of its components. The second consists of four components, one developed around each of the four roles of the teacher-innovator, and each of them designed to yield control over the areas necessary to that role. The four major components are interrelated and overlapping. They are dimensions of the program, rather than walled-off compartments. Each, however, has its distinct rationale and organization. Let us look first at the general methodology and structure of the program, and then at each of the four components.

The General Methodology and Structure

Thebasic teaching strategy in the program is "cooperative inquiry."[13] The teacher candidates are organized into democratic "inquiry groups" of about twelve students. These miniature democracies are assisted by faculty counselors who help them to educate themselves. The substantive components have all been designed so that they are virtually self-administering. In no activity is a faculty member more than a seminar leader. The structure of each component is explained to the inquiry group which then, with the help of the faculty, negotiates its way through the activities.

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[13]See Chapter 10-B for explication of the cooperative inquiry strategy.

Within each inquiry group the candidates are organized into "feedback teams." Each "feedback team" consists of three or four teacher-candidates who coach each other when they are learning skills to help analyze one another's teaching and to carry out small educational experiments throughout the program. These two units, the inquiry group and the "feedback team," kept together as much as possible throughout the teacher education program so that the members of the group shared the commitment to experimentation that is established at the beginning of the program and to support one another as they stretched themselves into new activities and experiments.

In addition, each inquiry group elects representatives to steering committees of faculty, administration and candidates who are responsible for administering, evaluating, revising the components of the program. An overall steering committee discusses policy matters and can call meetings of all the candidates and faculty when that is desirable.

The cooperative inquiry method, combined with the democratic organization of the program, accomplishes three purposes:

1. It teaches the teacher candidates how to organize an educational program that operates as a democracy. Hopefully, there will be reasonable transfer to their teaching situation.

2. It involves the teacher candidates in continuous experimental activity which is supported by a group of their peers. This group eventually can function as a reference group, anchoring the experimental norms for each member.

3. It involves the teacher candidates in the shaping of their own educational activities which should be a highly motivating activity. There are good odds that the students will become welded into a tight community, an experience which should have personal value as well as increasing the effectiveness of professional education.

IV. The Contact Laboratory

The second general structural element in the program is the contact laboratory, which refers to provisions for the teacher candidates to be in contact with schools or children. After an initial period of apprenticeship in the normal public school situation, the contact laboratory does not use any or employ any experiences which are analogous to those which usually characterize student teaching. Contact is provided, however, in order to give the teacher candidates

the opportunity to study schools, teachers and children, and also so that they can master a wide repertoire of teaching strategies, practice making curricular and instructional decisions, and engage in educational experimentation.

At Teachers College we have found it possible to provide much of the contact by organizing the candidates to offer educational programs to neighborhood children. There is a great demand for "remedial" programs in all school subjects, and for "enrichment" programs as well. Both after-school programs and summer programs are possible. By offering such programs the candidates both serve the neighborhood and create a contact laboratory, for themselves, in which frankly-experimental teaching can be the norm.

After substantial training, preferably in small-group teaching in their own "school," the teacher candidates are attached to teams in the Inquiry School in order to carry out fairly lengthy experiments. Finally, they are placed in public schools as interns, preferably in assignments where three of them cover the normal duties of two teachers, so that the three can work together continuing to carry out experiments. (It probably should be noted at this point that we take the view that all teaching is an experiment and that the only honest approach to teaching is to treat each educational activity as the testing of a hypothesis about teaching and learning.)

The contact laboratory is best described as six phases, each of which serves the four basic components in particular ways, often serving two or more components simultaneously. Briefly, these are:

Phase	Type	Purpose
Phase One	Experiencing the school.	A four to eight week apprenticeship to a public school.
Phase Two	Small-group and tutorial teaching (Preferably in candidate-operated program).	Ten to twenty weeks of experimenting with teaching strategies.
Phase Three	Unit Experimentation in Inquiry School.	Group experiments in teaching units taking four to eight weeks.
Phase Four	Experience in curriculum modes in Inquiry School.	Observation-Participation experience in a variety of ways of teaching.

Phase	Type	Purpose
Phase Five	Carrying on an educational program.	Inquiry groups develop and carry on a candidate-operated school program.
Phase Six	Internship.	Paid teaching, preferably in teams derived from inquiry groups.

The contact laboratory begins in the first weeks of the program and continues, ideally, into the first year of paid teaching. Only the initial phase includes apprentice teaching of the type most familiar in traditional student teaching programs. The remainder of the experience is in experimental teaching in which the candidates are mastering a variety of strategies and carrying out teaching units which they develop with research designs.

V. The Differential Training Model

The third structural element is a model for individualizing instruction which is based on the work of David E. Hunt of the Ontario Institute for Studies in Education. Hunt has taken the position that an optimal educational environment can be prescribed for individual teacher candidates which function in two ways. First, it will increase the learning of ideas and skills. Second, it will increase the personal flexibility of the teacher candidate. Hunt's model provides for modification of educational procedures to take into account four characteristics of the teacher candidate: his competency level, feedback preference, value orientation, and cognitive structure. All of these characteristics are related to achievement by the teacher candidate and cognitive orientation is related to personal flexibility.

The components are organized so that pacing by competency level is accomplished in the skill areas through procedures that the candidates administered directly to themselves. For example, a candidate needs to practice a teaching strategy only until he has mastered it and the means for determining mastery are built into the component in which teaching strategies are the central concern.

The other aspects of the differential model are carried out by the action of the faculty member as he works with the inquiry group. Basically, he modifies his role in order to change the educational environment that is presented to the candidates. With respect to feedback preference, for example, the faculty member modifies his behavior so that candidates who prefer feedback from authority figures receive much from him or other faculty, whereas candidates who prefer peer feedback receive less authority feedback and greater measures of peer judgment.

With respect to cognitive orientation, the faculty member modifies the amount of structure and task complexity that is presented to the teacher-candidate. For example, candidates of low cognitive complexity operate best in environments which are fairly well structured and in which task complexity is not too great. Highly complex individuals, on the other hand, operate best under low structure and high task complexity. Hunt's theory suggests (and he presents much research to bear him out) that when there is a substantial mismatch between cognitive complexity and the environment that the individual not only does not achieve as well but he also is unlikely to grow in flexibility. An optimal environment for growth in flexibility is one in which the amount of structure is somewhat less and the amount of task complexity is somewhat greater than what is optimal for achievement. In other words, a slight, controlled mismatch has the effect of pulling the individual toward ever increasing cognitive complexity and flexibility.

VI. The General Methodology Summarized

The program, then, is operated as a democracy with small self-regulating units of students monitoring their own progress and administering the program to themselves with the assistance of faculty counselors. The faculty counselor modifies his role to provide an optimal educational environment for each individual according to the differential training model. The contact laboratory is organized to provide the teacher-candidates with opportunities for study, micro-teaching, and experimentation rather than to socialize them to the school as it presently exists. The contact laboratory stretches over a long period of time in order to insure the development of realistic skills, but it is carefully designed to discourage the teacher-candidates from believing that "realism" means accepting the school as it is today and keeping it the same.

VII. The Four Components

As mentioned earlier the components are really dimensions of the unified program. The contact laboratory serves all four components, sometimes through the same activity. The descriptions which follow are telescoped greatly to give a general idea in a minimal space. Several stages within a component have often been combined into one for the sake of brevity, and the rationale and actual training techniques are only hinted at.

The Teacher as an Innovator

This component is developed from a thesis developed by Weinberg and presented in a source paper prepared as the program was being developed. Weinberg begins with the thesis that the school as we presently know it is a bureaucracy and that the roles of a teacher, like all bureaucratic roles, represent stabilizing forces in the institution rather

than forces which encourage change and adaptation to the individual. The average teacher engages in much routine activity and even teaches in certain ways and with some methods simply because they have "always been done." Moreover, deviation from these routine patterns of behavior is quickly questioned and sanctioned. As the novice teacher learns the bureaucratic roles within the school he suffers great alienation because he comes to recognize that many of the things that he is going to do as a teacher are not educative for youngsters so much as they serve to maintain the bureaucracy. He can resolve his conflict by leaving the school (which many young teachers do) or by accepting the bureaucratic roles and thus alienating himself from teaching (which many apparently do), or he can learn to understand the bureaucratic forces and develop his capacity to create authentic teaching roles and even engage in innovative activities through the school. This last course is the purpose of this component.

The component begins by exposing the student to the school as an apprentice and permitting him to learn whatever roles are given to him by the teachers to whom he is apprenticed. As he learns the bureaucratic roles, he will experience alienation. He is helped to analyze both the bureaucratic process and the feelings of alienation which he is having. He studies the social system of the school and the ways in which it stabilizes itself and prevents change and innovative activity from coming about.

From that point, he works in a group carrying out exploratory and experimental teaching strategies. This group (the inquiry group) will hopefully become a reference group for its members--a group whose norms are those of experimentation and innovation. In the common cause they will support each other and help each other anchor the commitment to change and experimentation. When the inquiry creates its section of the remedial and enrichment school they study how to teach in non-bureaucratic ways and how to build a community of teachers and students devoted to authentic and personal learning experiences. Throughout the intern period every effort is made to keep this inquiring group together and in contact with one another so that when they experience resistance to scholarly teaching and innovative activity their solidarity will bolster them.

<u>The Interactive Teaching Component</u>

It is in the area of interactive teaching that the most precise level of competence must be reached. To begin with, the professional self-concept of the teacher depends on his belief in his capacity as an interactive teacher. No matter how well he is able to build institutions and study education, he will not feel "authentic" or adequate unless

he knows he can "teach" well. Then also, performance in today's schools depends largely on competence in face-to-face teaching. The teacher must be able to weld groups of children into communities of learners and needs to command a range of teaching strategies which induce many kinds of learning. In addition, only a very high level of technical competence enables innovative activity. An awkward or inept teacher would have serious limitations as an innovator, to put it mildly.

Hence, this component is the most precise and requires the most definite standards of performance. Four sub-components focus on different aspects of teaching. One focuses on instructional decision-making, another on mastering teaching strategies, a third on developing flexibility and sensitivity to learners, and the fourth on developing a social system in the classroom.

Instructional Decision-Making

The sub-component is designed to teach the teacher candidates a range of strategies for making instructional decisions. Work begins with "The Teaching Game," a lively game-type simulation which confronts the candidates with several general principles, e.g., that teaching strategies have differential effects, that several aspects of the environment affect the learner, and that there are several defensible theories of learning which relate to different kinds of educational objectives.

The next phases of the component take place in a simulated school which consists of three elements: a set of data banks on many aspects of fourteen children (including test and observational data, samples of written work, expressions of attitudes, family experiences, etc.), data on three communities (Spanish Harlem, a New England town, an English town), and a set of decision-making tasks. The tasks bring the candidates into contact with common teaching decisions and lead them to the study of decision-making strategies. (They examine strategies based on psychological theories [see the next section] and strategies within the area of their specialty [as social studies or science teaching]). From that point the candidates, working in feedback teams, practice making decisions and carry them out. The tutorial-small group phase of the contact laboratory is the setting. Each member of the team practices making and carrying out decisions and evaluating the results.

The remainder of the component takes place during the "unit experiment," when the inquiry group plans and teaches a four to eight week unit in their specialty, building and testing teaching strategies and instructional materials.

Throughout, the activities stress making decisions in terms of testable hypotheses--that certain procedures will affect particular learners in such and-such a way. Thus, instructional decision-making is seen as the tailoring of teaching strategies to the student, and testing the effect of the strategy.

Models of Teaching

The general goal of the "Models of Teaching" sub-component is the mastery of a range of teaching strategies, each derived from a theoretical position on teaching and learning, and the ability to create and test strategies tailored to individual students.

The component begins with practice, in small-group teaching situations, of four basic teaching "moves" or maneuvers. (One to induce productive thinking, a second to produce achievement, a third to structure procedures, and a fourth to induce students to structure procedures themselves.[14]) These moves are generally useful teaching behaviors that begin the teacher's ability to carry out a number of strategies. Teacher candidates, working in feedback teams, practice the moves, coaching one another with the aid of audio and video-recorded teaching episodes.

In the next phase the teacher candidates, using the same techniques, set about the mastery of nine basic teaching strategies, each developed from a theoretical position on learning, and which, together, constitute a fundamental repertoire. Included are: an inductive strategy, a cooperative-inquiry approach, non-directive teaching, an advance-organizer strategy, inquiry training, operant-conditioning, and concept-attainment. All are widely useful.

In the remaining phases, candidates develop or adapt and subsequently test a variety of strategies. They try out the most common strategies in the field of their specialities. They develop strategies for the "unit experiment" and, from that point on, the models of teaching sub-component merges with the instructional decision-making sub-component.

Flexibility Training: Reaching the world of the learner

While a teaching strategy is a theoretically-based guide for teaching and curriculum-making, it should not operate as a juggernaut, rolling over the students, regardless of how they respond to it. Strategies should be reshaped as the child reacts (or fails to react) to them. Sometimes a strategy should be discarded entirely, and a completely different approach begun. Often, indeed, teaching should begin, not with a strategy, but from an encounter between the world of the student and the world of the teacher. To modify his strategy, to reach into the world of the learner and teach directly to him the teacher needs to behave flexibly. Flexibility is required to adjust teaching to the

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[14] See: Bruce R. Joyce and Berj Harootunian. The Structure of Teaching (Chicago: Science Research Associates, 1967), Chapter Three, for a description.

competence of the learner, to his preferred modes of working to ensure that the procedures enhance his feelings about himself, to build concepts between the learner and what is to be learned, and to accommodate an emotional reaction to the material. Flexibility training refers to the attempt to help the teacher become more sensitive to the world of the child, particularly to the ways that the child processes information about the world and reacts emotionally to encounters with it. Included in flexibility is the capacity on the part of the teacher to modify what he is doing in order to accommodate to the system of the learner. (For example, if the learner is very rigid in interpersonal relations he will betray this in many ways. The sensitive teacher will be able to pick up the cues to identify the rigidity and will modify his approach either by working with the youngster so that the rigidity is no great handicap to him, or by modifying his procedures so as to try to lessen the rigidity itself.) These processes (entering the world of the learner and modulating teaching activity to "fit" or capitalize on the learner's world) comprise flexibility in teaching.

Hence, flexibility, or the lack of it, is very much a part of the ongoing flow of interactive teaching. And, it is a very complex part of teaching. The behaviors of a student which give us clues to his ways of organizing the world accrue quickly and are ephemeral. They occur in a setting where many learners are usually present and each learner behavior (voice, expression, gesture) is only one of a number which might be interpreted by the teacher. For a teacher to take in the behavior of a group of youngsters, figure out their ways of looking at the world, and modify his behavior appropriately is quite a feat. Yet, if the teacher is not flexible, teaching can become detached from the students, lessons can miss the mark, and disaffection can occur between teacher and his student. Teaching requires continuous small adjustments of technique, personality, and pace. Flexibility is central to the process.

In the opening stages of the flexibility training component the teacher-candidates study children (the members of their small-group class) using procedures (developed by Ruth Formanek[15]) which are designed to sensitize the teacher to "coping" behavior by children and to the point of view that every student behavior has significance.

Then, they engage in teaching-situations called "communication tasks" in which they teach children or adults who play a particular role which relates to the objectives of the lesson. The roles are contrived so that the "learner" gradually reveals to the teacher a competency level, affective state, or cognitive orientation. Success in the

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[15]Ruth Formanek. "Course Outline and Workbook for Elementary Education 105." (Department of Elementary Education, Hofstra Univ., 1966).

task requires that the teacher figure out the characteristics of the learner and modify his strategy to take the learner into account. The teacher-candidates practice in communication tasks until they are able to diagnose learner characteristics easily and modify their teaching accordingly.

From this point the training moves to the contact laboratory, with candidates applying the same "learner-diagnosis, teacher modulation" procedures, coaching each other and exploring ways of matching teaching to learner.

The Social System of the Classroom

One of the most important aspects of interactive teaching is helping the children develop a social system and a sense of community. Even a group of youngsters who work together on a short project need to develop a rapport and modus operandi that enable them to work and grow together. A classroom group which works together for a year or more has an overpowering need for community.

Many teachers have great difficulty establishing an effective social system, especially in inner-city classrooms. This dimension of interactive teaching is so complex and difficult that this special sub-component has been devised to ensure that a significant effort is made to help the teacher candidate develop the understanding and skill which is necessary if he is to build strong and effective communities of children.

Until the last few years there has been altogether too little attention given to the development of strong training programs in this important area, although many educational theorists and research scholars have stressed its importance in the educational process. In Chapter Four of Bruce Joyce and Berj Harootunian. The Structure of Teaching (Chicago: Science Research Associates, 1967), there is an extensive review of research and theoretical positions in this area. This review will not be repeated here--it will be assumed that the importance of the area is obvious and that the reader has acquainted himself with the important literature in the area.

The general purpose of the sub-component is to provide the teacher-candidate with techniques for analyzing the social system of the classroom and to provide him with techniques for developing a stable, cooperative, person-oriented social system in a classroom, even when starting from chaotic conditions.

The component begins with the analysis of classrooms, using techniques developed by Louis Smith to analyze activity structure and social dynamics and to identify tasks involved in establishing a cooperative social order.

In the next stage the candidates analyze the social aspects of teaching strategies (amount of structure and training for roles as learners) and experiment with varieties of strategies, studying the effects on the social behavior of the children. They proceed to experiment, diagnosing the needs of the children, selecting a strategy, and analyzing the effects. (In an unruly group, for example, they might decide to institute a structured social situation, select a highly-structured strategy, and observe the effects on disruptive behavior.) Using audio and television tape, feedback team members coach each other until each can develop structure and provide role-training at will.

In the candidate-operated school the next stage involves the planning of the social system by the inquiry group, the development of a strategy for achieving it, and testing of the strategy.

This training is continued during the internship phase as needed. Candidates who have difficulty in this area, for example, will continue practicing until they can comfortably train children to a cooperative social system.

The Institution-Builder

Teaching is a large-scale social enterprise. The school as an institution is an effective educational force in its own right. Moreover, the character of the school greatly affects what the individual teacher can do. When it comes to innovation and scholarship, the institution is all-important.

Hence, an extensive component is devoted to the processes of creating institutions.

In the simulated school the candidates practice institutional decision-making and concurrently study strategies for developing the curricular, technological, and social systems of schools.

In connection with tutorial and small-group teaching, they study and test curricular strategies within the areas of their specialty.

Then, as they develop the candidate-operated school, they practice institution-building--planning and testing out curriculums, interpersonal climates, and support systems.

In the Inquiry School they study the institution-building techniques used there, especially the arrangements that permit scholarship and experimental teaching.

Finally, their internship is organized in groups which try, within more common school settings, to carry out teaching as an experimental activity.

The Teacher-Scholar

We make the assumption that all teachers should be specialists, both academically and pedagogically, but in addition provision is made to teach him theories and systems for studying the school, teaching, and learning.

Two extensive sub-components extend throughout the program. One concentrates on the study of children and the other on the study of teaching. Each alternates theoretical and experimental activities. The sub-component on the study of teaching illustrates the following.

The activities begin as the candidates start their small-group teaching. Working in feedback teams, they begin to analyze their teaching behavior using the Bellack, Flanders, Gallagher-Aschner, and Joyce systems, each of which analyzes teaching from a stance that illuminates teacher and learner in a distinctive way.

Then, the candidates construct small studies of teacher-learner interaction, generating the studies to help themselves study particular techniques of teaching, study their own progress toward mastery of moves and strategies, and develop experiments on the responses of children to teaching behavior.

The above activities are quite obviously integrated with the other components and provide one basis for the scientific study of teaching.

The other sub-component, focussing on the study of cognitive and affective development in children, is similar in format except that it equips the teacher to study the child and assay the effects teaching has on him.

VIII. Summary

The activities of the teacher-innovator program, then, involve the teacher candidate in continuous experimentation. He studies institution-building and subsequently experiments with the strategies he learns. He masters teaching strategies and experiments with them and others he creates. He studies his own teaching and tests its effects on children. He works in a School as a Center of Inquiry where teaching-scholarship

is the norm, and he develops and offers his own educational programs to children.

If the program succeeds, it will be because the inquiry groups become reference groups which continue to have significance in the teacher's life long after he graduates and which urge him to innovation and scholarship. If the democratic organization of the program is implemented vigorously, then the program will change rapidly, will be different for each inquiry group, and will require the faculty to reeducate themselves continuously. If enough inquiry-centered schools are established, the entire program can take place in them.